

Eco-Friendly Food Packaging: Young Consumers' Perceptions & Practices

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Abstract

Despite efforts done by the government which imposes “No Plastic Bag” campaign and a ban on polystyrene foam to pack food, small food businesses, food hawkers and campus cafeteria still fail to play their part fully in this exertion. They continue to sell their foods and drinks using non-biodegradable packaging and likewise, consumer still willingly buys them even though they pose hazard to health and environment. Being a young consumer, university student belongs to a huge group that often buys and consumes takeout food. This research focuses on eco-friendly food packaging based on the perception and the practice of young consumers, in this case the undergraduates of Mara University of Technology (Pulau Pinang) Permatang Pauh Campus. A set of questionnaire was constructed and distributed to 315 respondents using convenient sampling. The collected data were analyzed with simple descriptive statistic of frequency, mean and standard deviation. The result of this study demonstrates that most of the respondents are aware on the subject of eco-friendly food packaging and they are influenced by the factors of advertisement, family and peers. Majority of them also agree that the university should propose some alternative to control and reduce non-biodegradable foods and drinks packaging with the intention to encourage undergraduates to practice the use of eco-friendly food packaging. Despite agreeing that eco-friendly food packaging is important, it is found that the respondents do not actually use or fully practice using ecofriendly food packaging. Majority of them rely on the food sellers to provide the packaging for the food they bought in which most of the sellers apply the conventional food packaging method. Looking into this issue, this situation can be considered disconcerting.

Keywords: green, packaging, perceptions, practices

1.0 Introduction

Environmental Protection Agency (2011) statistics show that food packaging and containers contribute 30.2% of household waste in U.S. According to European Union (EU) reports by European Environment Agency (2010) it is about an average 17,000 tons of domestic waste per day and Malaysia is expected to produce 30,000 tons per day in 2020. Statistics from the Environmental Protection Agency (EPA) reports that paper packaging alone generated 1.5 million tons of waste and similar figures were found for plastic packaging with over 13 million tons generated as reported by European Environment Agency (2010). The increasing importance of sustainable concerns such as food safety, environmental protection and animal welfare indicate that consumers are not only concerned about the food availability but also about the health aspect of food products, which include safety, environmental-friendliness and animal welfare (Karli et al., 2012). Malaysian consumers are becoming more aware about the food safety while purchasing food products (Rezai et al., 2012). Many organizations and environmentalist in all nations put an effort to promote the green concept, in the same time they are looking for new ways to reduce costs while still providing new innovative packaging (Jayaraman et al., 2011).

Eco-friendly products have been drastically introduced in the market by corporations. Government regulation and consumer awareness urge many companies to practice green concept. Hypermarkets such as TESCO, Giant, Mydin Mall, and AEON, local supermarket and convenient store fully participate in this campaign. Educational institution co-op and cafes as well as some street vendors and food hawkers also help to play a part in this effort. Šataliæ et al., (2007) stated that university students being young adults mostly eat out or

take away food. This is proven with a research by Gan et al., (2011) which found that about 62.0% students from various universities in Malaysia reported that they choose to eat at hawker stall and food court daily. This study aims at finding out UiTMPP student's perceptions and practices on eco-friendly food packaging. The two major objectives of this study are:

1. To find out the influencing factor to the students' perception and the practice regarding eco-friendly food packaging.
2. To investigate the differences between the students' perception and the practice on eco-friendly food packaging.

2.0 Literature Review

According to Jayaraman et al., (2011) it is common foods and drinks to be packed or take away from canteen, cafeteria and shopping malls, to be put together in plastic bag and polystyrene. When food products are packaged, the food is having a direct contact with the inside surface of the packaging (Kirwan & Strawbridge, 2003). It is possible for interaction between the food and the packaging to occur and for components of the packaging to be absorbed by or to be reacted with food or drinks (Zero Polystyrene Campaign, 2014). Chemicals which has been found in polystyrene are styrene and benzene which are suspected carcinogen and neurotoxins that can intimidate human health and reproductive system. (Environmental Climate Change, 2014).

Owing to this, strict laws are imposed by some countries to cope with this issue. Takeout food packaging from polystyrene foam is forbidden by some authorities in United States. On the other hand, foamed plastic packaging is also prohibited in Chinese cities, including Beijing. Move on to other countries jurisdiction, these countries controlled the use of non reusable packaging in restaurant and store (Xing, 2009). On the other hand, plastic bags also are regulated by many authorities, primarily because they are the cause of huge litter. In particular, Corsica is the earliest state in French which expelled on the non-biodegradable plastic bags since 1999, and the comparable ban was launched in Paris in 2007. In addition, in 2000 Indian Government initiated a regulation to prohibit the use of plastic bags thinner than 20 microns in Bombay, Delhi and the entire region of Maharashtra and Kerala (Helen, 2012).

University student as reported by the Ministry of Higher Education, (2011) belongs to the highest number of population of students in Malaysia. At the same time they are also huge group that often consumes takeout food. This is in line with the statistic from Sunway University which revealed that cafeteria operator used approximately polystyrene foam food service on approximately 54,000 polystyrene foam clam-shell containers and 63,000 foam polystyrene cups in year 2009 (Environmental Climate Change, 2014).

2.1 Consumer Perception and Practice for Usage Eco-Friendly Food Packaging

Specifically in Malaysia, there is limited information about consumer's perceptions and their practice towards going green (Rezai et al., 2012). Manget et al. (2009) discovered that almost half of the respondents in a multi-country survey indicated that green products offer comparable or superior quality over conservative alternatives. On the other hand, Golnaz et al. (2011) found that consumers value quality over price for environmental products, Many people do not put dollars and cents first when going green, basing their judgment instead primarily on ethics and their desire to help the planet (Golnaz et al., 2011).

In the middle of the government imposed green campaign, Universiti Sains Malaysia also launches The White Coffin campaign which is an interesting and the most successful student-driven project within the university. A group of students initiated this campaign and then were encouraged with the full support from the university's top management and guidance from the Kampus Sejahtera secretariat to take the lead against the use of polystyrene on campus (Mok, 2012). Activities conducted during the campaign were the Polystyrene Free Day, meetings with cafeteria operators, MyPledge (for a sustainable world) and students campaigning, enforcing and introducing the use of biodegradable or own food containers to pack food as environmentally friendly alternatives than using polystyrene food containers, with the success of the White Coffin campaign, Kampus Sejahtera launched another campus-wide campaign to reduce and stop the usage of plastic on campus, which is known as the Say No to Plastic campaign (Mok, 2012).

3.0 Research Methodology

Initially, this section will start with the research design. Subsequently, the research instrument design on the development of the questionnaire is being carried out before going to the data collection process. Finally, reliability test will be discussed and explained at the end of this section. As stated by Kumar et al. 2013, descriptive study was carried out consecutively to describe something which could be a phenomenon, a current situation or the characteristic of a group, organization and people. By looking at the nature of this study, descriptive research was used and the best way in conducting by using qualitative approach. Due to some difficulties, a quantitative research was decided for this study, which requires less in depth during data collection but more respondents are able to be assessed (Kumar et al., 2013).

3.1 Research Sample and Plan.

Questionnaire survey was chosen as the method of assessing the students as the respondents with a set questions and answers that the respondents tick from a predefined selection. Answers can be measured in the strength of feeling such as ‘strongly agree’ ‘disagree’ or number such as the scales out of 5. This form of research is very flexible in terms of how it is carried out such as through the post, online or even over the phone (Kumar et al., 2013). In addition, the sample size for a survey is calculated by statisticians using formulas to determine how large a sample size will be needed from a given population in order to achieve findings with acceptable degree of accuracy. Questionnaire survey was chosen to gain the required data. This method was selected to ensure that the obtained data from the respondents are based upon their actual practice and perception. (Byrne, 2002)

The study was carried out within UiTMPP. There are numerous reasons in choosing this relative location. In determining the sample size for research activities based on Krjje& Morgan (1970), the following formula was used

$$s = \frac{X^2 NP (1 - P)}{d^2 (N - 1) + X^2 P(1 - P)}$$

s = required sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size

P = the population proportion (assumed to be .50 since this would provide maximum sample size)

d = the degree of accuracy expressed as a portion (.05).

Following the formula above, the population of bachelor students in UiTMPP is 2328. Thus, the sample size required for this study is 329 respondents, both male and female aged between 18 and 35 years old from the three main faculties in UiTMPP campus Permatang Pauh. The data collection process was conducted on weekdays, within the respective UiTMPP area in the month of October 2014. There are 327 questionnaires prepared and distributed. 315 were able to be collected and found useful. Hence, the data were coded and keyed in Social Statistical Packages (SPSS) version 20.

4.0 Data Analysis

This section presents the analysis obtained from the collected data. The data was keyed-in and analyzed by using the software SPSS version 20.0 and represented in the tables below. The three part of the questionnaire were scrutinized separately using descriptive statistic. The background of the respondents is reported earliest before going on with the analysis of the other following parts. Reliability is concerned with stability and consistency in measurement. The reliability of a measure indicates the extent to which the measure is without bias (error face) and hence offers consistent measurement across time and cross the various items in the instrument. In testing the internal consistency and reliability of the instrument, Croanbach’s Alpha is the adequate test in almost every case which used multipoint-scales items (Sekaran, 2003). The closer Cronbach’s Alpha is to 1, the higher the internal consistency reliability. With regard Part B Cronbach’s Alpha .779 (n=9) in indicating student’s food habits & Factor Influencing Perception and Practice were analyzed and Part C Cronbach’s Alpha .768 (n=10) identifying the level of perception towards eco friendly food packaging Without a doubt, the result from three sections on its reliability was satisfactory and more than appropriate to carry on with any further testing.

4.1 Background of the Respondent

Before embarking on to the analysis part that deals with the objectives of the study, it is vital to recognize the characteristics of the respondent. The demographic factors are age, gender, marital status, residence status and faculty are analyzed and reported in table 4.1.

Table 4.1 Number and percentage of Respondent’s Demographic Profile

No.	Items	All	
		n	%
1.	Age		
	18-25 years	296	94.0
	26-30 years	15	4.8
	26-30 years	4	1.3
	Total	315	100.0
2.	Gender		
	Male	99	31.4
	Female	216	68.6
	Total	315	100.0
3.	Marital Status		
	Single	302	95.9
	Married	13	4.1
	Total	315	100.0
4.	Residence status		
	Residence	250	79.4
	Non Residence	65	20.6
	Total	315	100.0
5.	Faculty		
	Hotel & Tourism	174	55.2
	Business Management	66	21.0
	Engineering	65	23.7
	Total	315	100.0

4.2 Students Food Habit & Factor Influencing Perceptions and Practices

Nine items in the following section were used to report the mean score in recognizing the students’ food habits and the factor influencing their perception and practice. The mean scores are tabulated in table 4.3.

Table 4.3 Mean and Standard Deviation for Factors Influencing Students Perceptions and Practice

Items	Mean	Std. Deviation	N
I often buy packed food from outside because it is easy.	3.63	1.039	315
I often buy packed food from outside because it is fast.	3.57	.999	315
I often buy packed food from outside because lack of cooking facilities.	3.81	1.114	315
I often buy packed food from outside because my friend asked me to join them to buy packed food outside the campus.	3.06	1.155	315
I often buy packed food from outside because of the advertisement power (eg. Pizza Hut, KFC advertisement).	3.08	1.179	315
I often buy packed food from outside because I am far away from parents (nobody to cook).	3.58	1.179	315
I often buy packed food during the weekend while hanging with friends	3.40	1.073	315
I am practicing the use of eco-friendly food packaging because of environmental awareness.	3.24	1.046	315
I will be perceived by others as ‘out dated’ if I do not support environmental protection	2.82	1.224	315

As shown on the table above, the highest mean is (M=3.81, item 3). Accordingly, a lack of cooking facilities is the main factor influencing students to buy packed food from outside. Since students are prohibited from bringing and using cooking equipment at the college, thus they preferred to buy packed food from outside. It can be proven based on the researcher’s own experience. The respondents also agreed they often buy packed food from outside because it is easy (M=3.63, item 1), fast (M=3.57, item 2), they are far away from parents (M=3.58, item 6), of their peers (M=3.40, item 7), of advertisement (M=3.08, item 5). Indeed, the lowest is (M=2.82, item 9) as they slightly agreed they will be perceived by others as out dated if they did not support environmental protection. After analyzing this section, the next part will be looking at the perception towards eco-friendly food packaging.

4.3 Perceptions towards Eco Friendly Food Packaging

In line with the objectives of the study, ten items in the next section were used to seek for the students’ perception towards Eco friendly food packaging and are presented in table 4.4.

Table 4.4 Mean and Standard Deviation for Perceptions towards Eco Friendly Food Packaging.

Items	Mean	Std. Deviation	N
I think Malaysia’s environmental problem is worsening	3.98	.890	315
I think Go Green Campaign is informative for me to know how I can perform green.	3.90	.865	315
I think the campaign is at the right time.	3.61	.952	315
I think that, charges for plastic bag in Penang impose a burden especially for a student.	3.19	1.335	315
I agree that food stall/food court should use paper bags instead of plastic bags	3.84	1.068	315
I have taken responsibility for environmental protection since I was young	3.84	.991	315
Eco friendly food packaging helps in reducing plastic bag and polystyrene to be used as a parcel to pack foods and drink.	4.05	.891	315
In general, food and drinks (hot) packed in plastic bags and polystyrene pose health hazard	4.17	.857	315
Practicing the use of eco-friendly food packaging will help to reduce pollution	4.15	.910	315
I agree that the Malaysian community is lack of exposure on eco friendly food packaging	4.18	.843	315

Based on the results, the mean scores show most of the respondent agreed that the Malaysian community is lack of exposure on eco friendly food packaging (M=4.18, item 10), foods and drinks (hot) packed in plastic bags and polystyrene pose health hazard (M= 4.17 item 8), practicing the use of eco-friendly food packaging will help to reduce pollution (M= 4.15 item 9), and eco-friendly food packaging helps in reducing plastic bag and polystyrene to be used as a parcel for foods and drinks (M= 4.05 item 7), Meanwhile the respondents slightly agreed that, Malaysian environmental problem is worsening (M=3.98 item 1), go green campaign is informative for them to know how they can perform green (M=3.90 item 2), food stall/food court should use paper bags instead of plastic bags (M=3.84 item 5), they have taken responsibility for environmental protection since they were young (M=3.84 item 6), the campaign is at the right time (M=3.61 item 3), and charges for plastic bag in Penang impose a burden especially for a student (M=3.19, item 4). After seeing the outcome in the table above regarding the perception of the respondent, the practice and regulations towards eco friendly food packaging among the respondents are being demonstrate below.

5.0 Results

Female respondents are more participating in this research compared to male respondent, nearly all of them still single compared to married. The differences are between the respondents who are between 18 and 35 years old which is relevant because most of respondent in this age group still young adults because majority of them are young adults furthering their degree straight after finished their diploma and also most of them from Sijil Tinggi Pelajaran Malaysia (STPM). The majority of the respondents are from students of Faculty Hotel & Tourism as they are easy to approach due to researcher also from the same faculty.

The student’s food habits factor influencing student’s perception and practice towards eco friendly food packaging. Most of them stated that the causing factor that influence their perception and practice on eco friendly food packaging is because of lack of cooking facilities make them often buy packed from outside. Due to this in likely manner that they claimed they often buying packed food from outside because it is easy,

fast, and there is nobody to cook for them owing to living far away from parents. In the same way goes to the other factor which is they buy packed food on weekend when hanging out with friends and also they claimed they use eco friendly food packaging because of they are aware about the environment.

Looking into the awareness about the environment among the respondent revealed the perceptions of respondents towards eco friendly food packaging that a large number of them agreed food and drinks (hot) packed in plastic bags and polystyrene pose health hazard. Furthermore the respondent share the same opinion that by practicing use eco friendly food packaging will help in reducing pollution. With that perception, it shows that most of the respondent think that Malaysia's environmental problem is worsening because the community is lacking of exposure on eco-friendly food packaging. This is supported by Lee (2008) who discovered that young adults deemed the significance of environmental issues as the least important factor that influenced them to follow the go green behavior.

6.0 Study Implication and Conclusion

Practicing the used of eco-friendly food packaging should be started within one own self. The young adults must give a full effort to sustain this green move. The findings demonstrate that the respondent seems to be influenced by advertisements which convey the information about eco-friendly food packaging. With this intention, there is promotional campaign need to be maintained by putting more advertisements in food court, cafeteria or even in restaurant in order to create interest among them to use green food packaging. Nowadays, young adults (18-25 years) pay much attention to social media and online apps on their gadget so online advertising could be the best medium to convey the information about eco friendly food packaging. It is important to realize that it is vital to ensure young adults get early exposure about biodegradable food packaging because they are the consumers of tomorrow. The information about green food packaging needs to be comprehended because the more people who get the knowledge about environmentally friendly food packaging the more people will believe in the green claimed and it can referred in the findings of the previous section that people who have more knowledge concerning the eco-friendly food packaging are believed to be practicing it. The university management should maintain promoting the students to use eco-friendly food packaging and to command strict rules to food handler in the cafeteria by prohibiting them from using non biodegradable food packaging to pack the foods and beverages.

With the Ministry of Energy, Green Technology and Water, shows that the government is concerned in educating Malaysians on environmental awareness. The ministry has put up a good effort by organizing the 5th International Greentech & Eco products exhibition & conference Malaysia (IGEM 2014), the objectives are to promote green purchasing or procurement and green the supply chain in addressing environmental problem and also to encourage high-level collaboration and technology transfer in green technology, eco design and eco materials for greater international competitiveness and green growth. In addition to this, the government plays an important role in spreading the information on the importance practicing use eco-friendly food packaging to the new generations as an early exposure in the importance of practicing biodegradable food packaging. Sooner or later all level of society must put some effort in order to change the narrow mind about biodegradable food packaging as long as it is in line with the Malaysia's sustainability development.

7.0 References

- Environmental Climate Change (2014, September 14). Retrieved October 19, 2014, from www.sunway.edu.my.
- Environmental Protection Agency. (2011). *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2011*. (EPA Publication No. 530-F-13-001). Washington, DC: U.S. Environmental Protection Agency
- Byrne, D. (2002). *Interpreting Quantitative Data*. London: Sage Publications.
- European Environment Agency . (2010). Retrieved October 3, 2014, from *Generation and recycling of packaging waste*: <http://www.eaa.europa.eu/data-and-maps/indicators/generation-and-recycling-of-packaging-waste/generation-and-recycling-of-packaging>

- Gan, W., Mohd Nasir, M., Zalilah, M., & Hazizi, A. (2011). Differences in eating behaviours, dietary intake and body weight status between male and female Malaysian University students . *Mal J Nutr* 17 (2) , 214-215.
- Golnaz, R., Zainalabidin, M., Mad Nasir, S., & Phuah, K. (2011). Demographic and attitudinal variables associated with consumer's intention to purchase green produced food in Malaysia. *International Journal of Innovation Management and Technology*, 2(5) , 401-406.
- Helen, L. (2012). Restriction on Plastic Shopping Bags and Takeaway Food Packaging. In K. e. al, *Packaging for Sustainability* (p. 165). Melbourne: Springer Verlag London.
- IGEM2014 - Creating Green Wealth. (2014, August 19). Retrieved November 17, 2014, from MENGO Malaysian Environment NGOs: <http://www.mengo.org/news/latest-news/113-igem2014-creating-green-wealth>
- Jayaraman, K., Hasnah, H., Gooi, B. S., Soh K. L. (2011). Consumer Reflections on the Usage of Plastic Bags to Parcel Hot Edible Items: An Empirical Study in Malaysia. *J Clean Prod* 19 (2011), 1527-1535.
- Karli, V., Helen, L., & Leanne, F. (2012). *Packaging for Sustainability*. Melbourne: Springer London.
- Kirwan, M. J., & Strawbridge, J. W. (2003). *Plastic in Food Packaging*. USA: Blackwell.
- Krejcie, R., V., & Morgan, D., W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement* 30: 607-610.
- Kumar, M., Talib, S. A., & Ramayan, T. (2013). *Business Research Method*. New York: Oxford.
- Lin, M. (2010, October 9). *Malaysian Food: Diversity at its best!* Retrieved November 29, 2014, from Latitude.nu: <http://latitudes.nu/malaysian-food-diversity-at-its-best/>
- Manget, J., Roche, C., & Munnich, F. (2009). *Capturing the green advantage for consumer companies*. USA: BCG.
- Ministry of Higher Education. (2011). Retrieved October 3, 2014, from MoHE Education Statistics online: www.mohe.gov.my/web_stastik
- Mok, O. (2012, November 19). *Penang bans polystyrene containers from Dec 1*. Retrieved September 17, 2014, from (<http://www.themalaysianinsider.com/malaysia/article/penang-bans-polystyrene-containers-from-dec-1#idc-container>)
- Rezai, G., Phuah, K. T., Zainalabidin, M., & Shamsudin, M. N. (2012). Going Green; survey of Perception and Intentions Among Malaysian consumers. *Canadian Research & Development Center of Science and Cultures* .
- Šataliæ, Z., IC, B., & Keser. (2007). Diet quality in Croatian university students: Energy, macro nutrient and micro nutrient intakes according to gender. *Int J Food Sci Nutr* 58(5) , 398-410.
- Sekaran, U. (2003). *Research Methods for Business* (4th Ed). New Jersey: John Wiley & Sons, Inc.
- Xing, X.F. (2009). Study on the ban on free plastic bags in China. *Journal of Sustainable Developemnt* (2)